1: Biochemistry. 1990 May 1;29(17):4081-7.

Expression of human alpha 2-macroglobulin cDNA in baby hamster kidney fibroblasts: secretion of high levels of active alpha 2-macroglobulin.

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Human alpha 2-macroglobulin (alpha 2M) is a unique 720-kDa proteinase inhibitor with a broad specificity. Unlike most other proteinase inhibitors, it does not inhibit proteolytic activity by blocking the active site of the proteinase. During complex formation with a proteinase, alpha 2M entraps the proteinase molecule in a reaction that involves large conformational changes in alpha 2M. We describe the molecular cloning of alpha 2M cDNA from the human hepatoblastoma cell line HepG2. The cDNA was subcloned under control of the adenovirus major late promoter in a mammalian expression vector and introduced into the baby hamster kidney (BHK) cell line. Transformed clones were isolated and tested for production of human alpha 2M with a specific enzyme-linked immunosorbent assay. Human recombinant alpha 2M (r alpha 2M), secreted and purified from isolated transfected BHK cell lines, was structurally and functionally compared to alpha 2M purified from human serum. The results show that r alpha 2M was secreted from the BHK cells as an active proteinase-binding tetramer with functional thiol esters. Cleavage reactions of r alpha 2M with methylamine and trypsin showed that the recombinant product, which was correctly processed at the N-terminus, exhibited molecular characteristics similar to those of the human serum derived reference. Moreover, r alpha 2M-trypsin complex bound to purified human placental alpha 2M receptor with an affinity indistinguishable from that of a complex formed from serum-derived alpha 2M and trypsin.

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☐ 1: Biochem Mol Biol Int. 1995 Nov;37(5):917-23. Related Articles, Links

Prostate specific antigen-alpha 2-macroglobulin complexes in prostate cancer patient sera.

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Quantitative immunoblc t sera revealed that most prostate specific antigen was in ymotrypsin or alpha 2-macroglobulin with little of it being fre ate specific antigen with these protease inhibitors in patient sera presis with the respective purified complexes. Each compl om patient sera by absorption with specific antibodies. Wh as added to normal plasma, complexes with alpha 2-macroglob hr, the distribution was approximately 40% free antigen, appr h alpha 2-macroglobulin, and approximately 20% cor notrypsin. These data show that prostate specific antigen reacts roglobulin than with any other protease inhibitor in plasma and th alpha 2-macroglobulin in vivo in cancer patients.

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